Physics 331

RICE UNIVERSITY

Apparatus for each week's exercise will be available in the Physics Teaching Lab area in the basement of Herzstein Hall. You may obtain the door code from Dr. Dodds in HRZ 215. The building is accessible outside of normal hours with a Rice ID through the north-side door (facing Duncan Hall).

Due Dates spring 2014
Early submissions are always welcome, while late work will be penalized at the rate of 5 percentage points per day late. Reports and problem sets will not be accepted more than 10 days after the due date or the end of finals, whichever is earlier. All assignments must be completed in order to pass the course.

The graded work for the semester will consist of:

A report on the Analog Circuits exercise: Due by 5:00 PM Tuesday February 4, 2014
A report on the Digital Circuits exercise: Due by 5:00 PM Friday February 28, 2014
The Data Analysis exercise: Pledged problem set available for pickup from HRZ 215 Monday March 10, 2014. Due by 5:00 PM Monday March 17, 2014.
A report on the Noise Reduction exercise: Due by 5:00 PM Wednesday April 2, 2014
A report on the Particle Counting Exercise: Due by 5:00 PM Tuesday April 29, 2014

Course Policies

The experimental work is semi-self-paced, but you must arrange to go over each experiment with the instructor. This will save you the time and wasted effort otherwise spent chasing parts or malfunctions.

You may work with at most one partner if you wish, but it is not required. In any case, each student is expected to be familiar with all phases of the experiment and to produce an independent report of the results.

In order to complete the course you should plan to work at least one afternoon per week, preferably on a regular schedule. The deadlines define a minimum pace for successful completion of the course. Note also that the amount of equipment is limited, so it will be impossible for all students to do an experiment immediately before a deadline.

Resources
Instructions for the required exercises are provided below, in pdf format. Background information can be found in the topical notes listed, and in the textbook by Bevington, "Data Reduction and Error Analysis", available in the bookstore.

Laboratory Exercises

Analog Circuits
Digital Circuits
Data Analysis and Presentation
Noise Reduction

Particle Counting

Topical Notes

- Digital Circuits
- Analog Circuits
- Making Circuits Work
- Dimensions, Units and Conversions
- Error Analysis and Significant Figures
- Using Figures - The Basics
- Graphing Examples
- Plotting Data With Microsoft Excel
- Noise Reduction
- Particle Counting Methods
- Particle Counting Statistics
- Operation of NIM Modules
- Additional Souces

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